Project Introduction

Simulations of reacting flow in applications such as scramjet engines are currently limited in their utility or accuracy by the chemistry sub-models employed. Accurate chemistry models for hydrocarbon fuels are particularly problematic since the detailed kinetic mechanisms can be highly complex, essentially prohibiting obtaining a timely solution. Simpler global chemistry models, while tractable, are notoriously inaccurate except over narrow ranges of conditions. Reactions Systems therefore proposes to explore a new approach to capturing the detailed chemistry in a reduced multi-dimensional format that could combine the advantages of ISAT with recent RSLLC proprietary innovations in species reduction.

Primary U.S. Work Locations and Key Partners

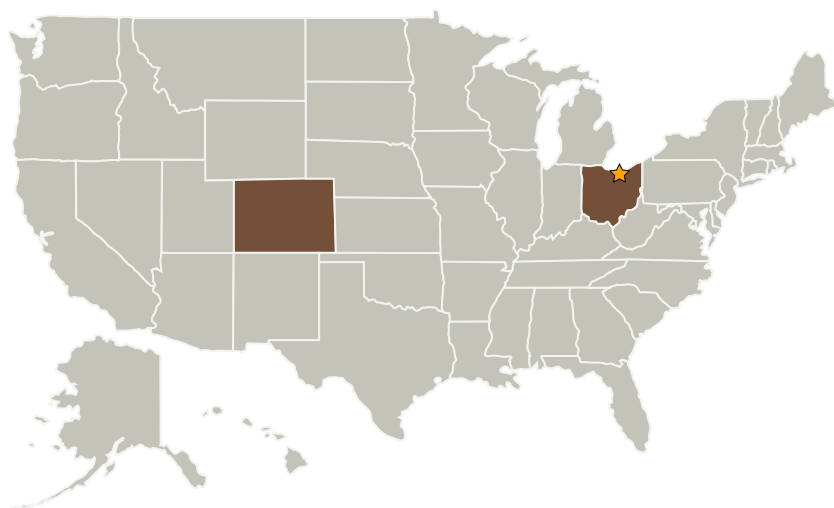| Organizations Performing Work	Role	Type	Location
⭐Glenn Research Center(GRC)	Lead Organization	NASA Center	Cleveland, Ohio
Reaction Systems, LLC	Supporting Organization	Industry	Golden, Colorado

Species Source Term Mapping for Reacting Flow CFD, Phase I

Table of Contents

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Glenn Research Center (GRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Primary U.S. Work Locations	
Colorado	Ohio

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Bradley Hitch

Technology Areas

Primary:

- TX15 Flight Vehicle Systems
  └ TX15.1 Aerosciences
    └ TX15.1.7
      Computational Fluid
      Dynamics (CFD)
      Technologies